Landcare-led Landscape Resilience

Tools and data for restoration decisions

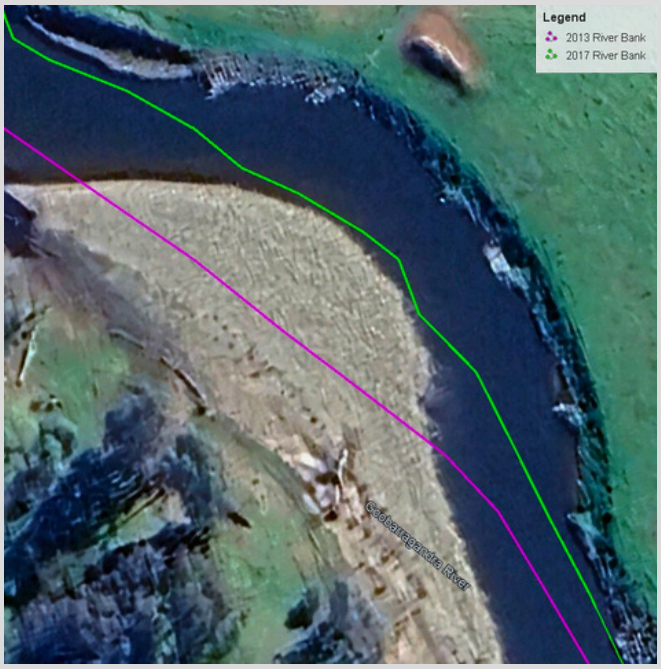
Stemming the tide of stream bank erosion

OBJECTIVES

Between the 2 properties at this site there has been major flooding events between 2013 and 2023 which has seen in excess of 1 hectare of land swept downstream overnight. The objective was to try and stabilise the bank through the use of long-stem planting techniques. It aims to evaluate the effectiveness of this method in mitigating erosion, promoting native vegetation recovery, and enhancing the resilience of the Goobarragandra River's riparian zone following extreme flooding events.

WHAT WAS INVOLVED?

Due to the challenges of working on a highly regulated rivers and the limitations of funding available to support small landholders in securing stream banks, the property owners were left with few options beyond fencing and non-invasive interventions. While rock walling had been implemented in earlier years, it was decided to complement these efforts by erecting new fencing and utilising long-stem planting. This included planting on the upper banks as well as stabilising undercut banks by inserting long-stem plantings of River Tea Tree (Leptospermum obovatum) and River Sheoak (Casuarina cunninghamiana).



Section of the river showing a 0.37Ha loss of land as a result of major flooding events.



Rock walling done on a bigger property affected by the same flooding events on the Goobarragandra river

KEY STEPS

- Long-Stem Seedling Preparation: Propagate native seedlings using the long-stem method. Grow seedlings in pots for 10-18 months to achieve long, woody stems. Use a quality native potting mix with slow-release fertilisers. Choose species identified in your site assessment as appropriate for the area.
- Use a high-pressure water jet to create planting holes approximately 1 metre deep. This method is particularly effective in compacted or rocky soils. Carefully insert the long-stem seedlings into the water-jetted holes, ensuring about three-quarters of the stem is submerged. The force of the water jet creates a slurry of soil and water, which naturally backfills around the plant as it's inserted.

WHAT IS LONGSTEM PLANTING

Long-stem planting, an innovative Australian revegetation technique, involves growing seedlings for 10-18 months to develop long woody stems, then planting them with about three-quarters of their length buried approximately 1 metre deep. This method offers higher survival and growth rates with minimal post-planting care, particularly in challenging environments like riparian zones, rainforests, coastal areas, and saline sites. The deep planting protects roots from temperature fluctuations, allows access to deeper soil moisture, and reduces weed competition. Seedlings are grown in standard 50 mm square-cornered pots using quality native potting mix and slow-release fertilisers. Planting involves digging deep holes, carefully backfilling with soil and water, and creating a dish-shaped depression around the stem to catch rainwater. This technique challenges traditional beliefs about planting depth and has been successfully adopted in various Australian environments and overseas, demonstrating its effectiveness in revegetation projects.

This technique challenges traditional beliefs about planting depth

COST CONSIDERATIONS

Long-stem planting and rock walling are two contrasting methods for managing stream bank erosion. Long-stem planting utilises native vegetation with deep roots to stabilise soil and improve water quality. It's cost-effective and environmentally beneficial, but may take time to establish. Rock walling, or rip rap, offers immediate protection and is easy to install, but is more expensive and lacks ecological benefits.



Eucalyptus camaldulensis grown especially for long-stem planting and high pressure water jet foe sinking planting holes

RESOURCES

Revegetation: There are ample resources available if you are not working in an area covered by a revegetation guide. Contact your Local Landcare Coordinator or Natural Resource Management agency for further details.

- South West Slopes and Riverina Revegetation Guides: **https://revegetation.org.au/**
- NSW state Government Trees near me app: **https://www.treesnearme.app/explore**
- The Long-stem Planting Guide https://riversedgewest.org/sites/default/files/2022-06/Austrailian_Longstem_Guide.pdf

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